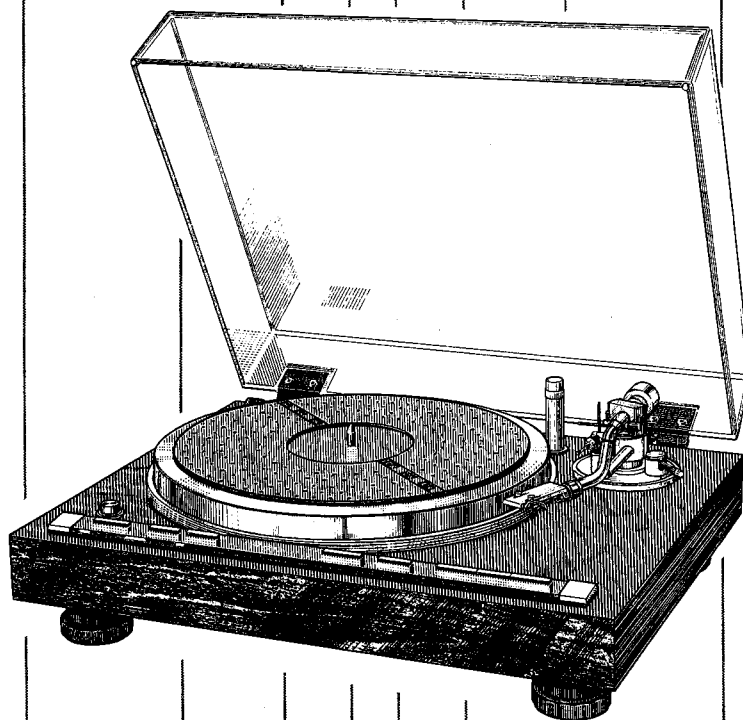


FULL ELECTRONIC CONTROL  
FULL-AUTOMATIC DIRECT-DRIVE TURNTABLE

# KD-850

INSTRUCTION MANUAL



 **KENWOOD**

# INTRODUCTION

Your choice of this product indicates that you are a devotee of excellence in sound reproduction. We appreciate your patronage and take pride in the long tradition of quality components that the name Kenwood represents.

So that you can get the most out of your KD-850, we suggest that you take the time to read through this manual before you hook up and operate your system. This will acquaint you with operating features, and system-connection considerations, so that your listening pleasure will be enhanced right from the start. You will notice that in all aspects of planning, engineering, styling, operating convenience and adaptability, we have sought to anticipate your needs and desires.

Keep this manual handy for future reference.

## FOR YOUR RECORDS

Record the serial number, found on the back of the unit, in the spaces designated on the warranty card, and in the space provided below. Refer to the model and serial numbers whenever you call upon your Kenwood dealer for information or service on this product.

Model KD-850 Serial Number\_\_\_\_\_

## UNPACKING

Unpack the unit carefully and make sure that all accessories and cables are put aside so they will not be lost.

Examine the unit for any possibility of shipping damage. If your unit is damaged or fails to operate, notify your dealer immediately. If your unit was shipped to you directly, notify the shipping company without delay. Only the consignee (the person or company receiving the unit) can file a claim against the carrier for shipping damage.

We recommend that you retain the original carton and packing materials for use should you transport or ship the unit in the future.

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# BEFORE APPLYING POWER

**IMPORTANT:** Read carefully before you plug this unit into a power outlet.

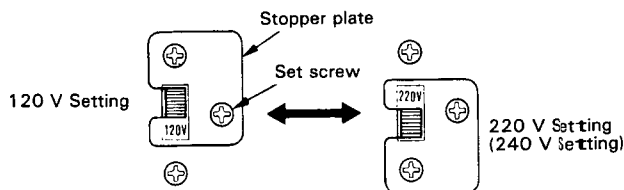
- Units shipped to the U.S.A. and CANADA are designed to operate on 120 V AC only.

They are not equipped with an AC Voltage Selector Switch and the following description of such a switch should be disregarded.

- Units shipped to all other countries are equipped with an AC Voltage Selector Switch at the rear. The following description of this switch should be carefully read.

## AC VOLTAGE SELECTOR

- This unit operates on 120V or 220V (240V)AC. The AC Voltage Selector Switch is preset at the factory to the voltage generally available in the destination area. Before operating this turntable, make sure that the position of the AC Voltage Selector matches your line voltage.



- If the setting of the AC Voltage Selector switch on your unit is not set correctly to your line voltage, it must be reset.

1. Remove the set screw and stopper plate.
2. Switch the lever to opposite side.
3. Lock the lever by attaching stopper plate with the set screw.

- Our warranty does not cover damage caused by excessive line voltage due to improper setting of the AC Voltage Selector Switch.

## POWER FREQUENCY

- This turntable is driven by a DC motor, and will work equally well on 50Hz or 60Hz power frequency.

## WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

# PARTS NOMENCLATURE

- Immediately after unpacking, check the parts to confirm that none are missing.
- Assemble the turntable, according to the instructions on Page 4.

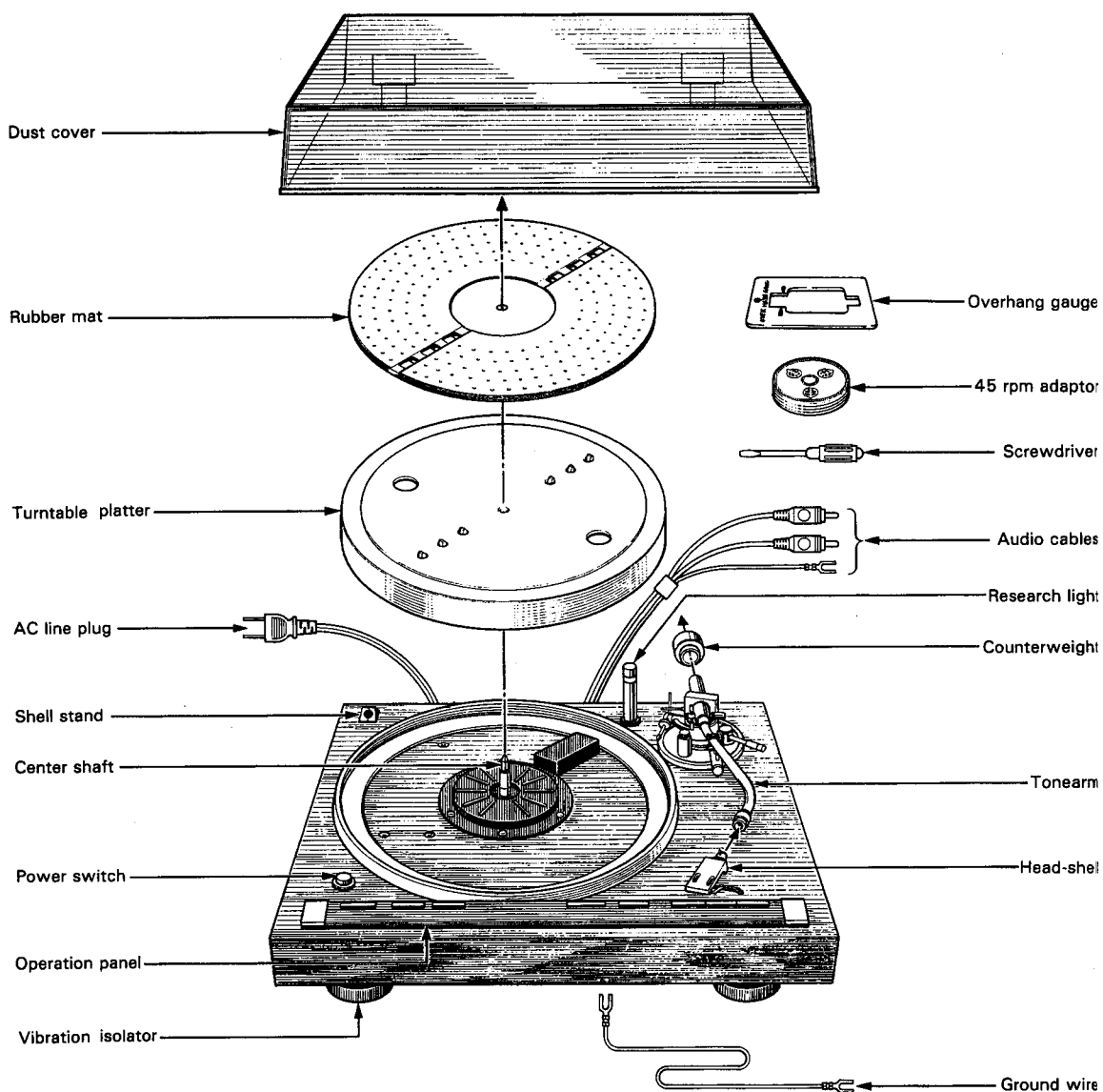


Fig. 1

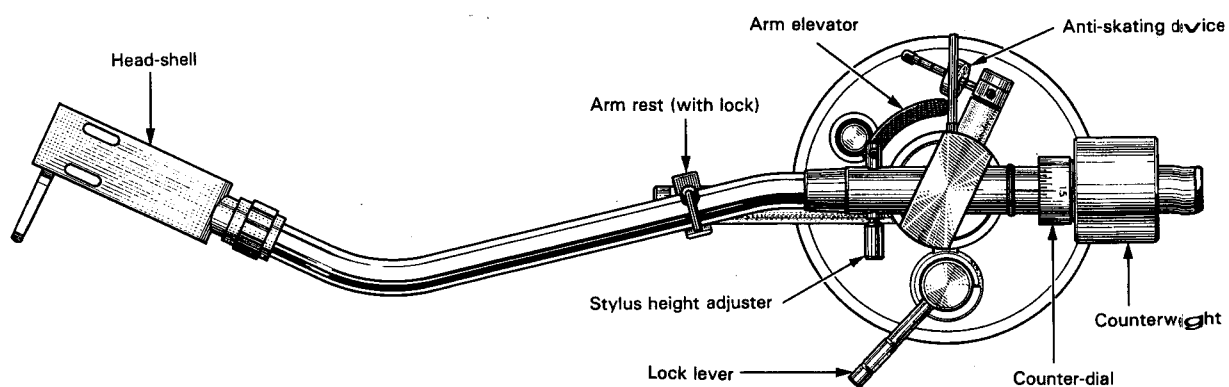


Fig. 2

# ASSEMBLY

■ Assemble parts in the sequence indicated.

## ① Turntable-Assembly Installation

This turntable assembly is quite heavy so it should be placed in its final location before proceeding. Be sure to choose the most suitable place. See "Installation" on page 12. Install the turntable assembly with its four vibration isolators turned fully clockwise.

## ② Connections

Connect the audio cables, ground wire, and the power supply cord to your amplifier or receiver.

### Note:

Be sure to keep the power switch at "OFF". Turn off amplifier or receiver power when making connections.

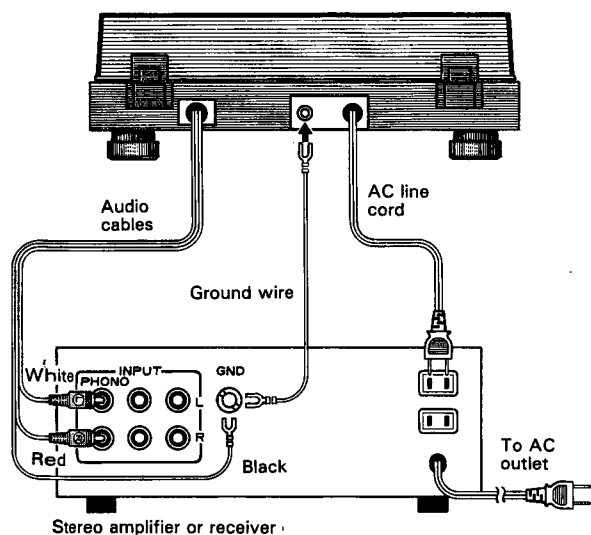


Fig. 3

## ③ Turntable Platter Installation

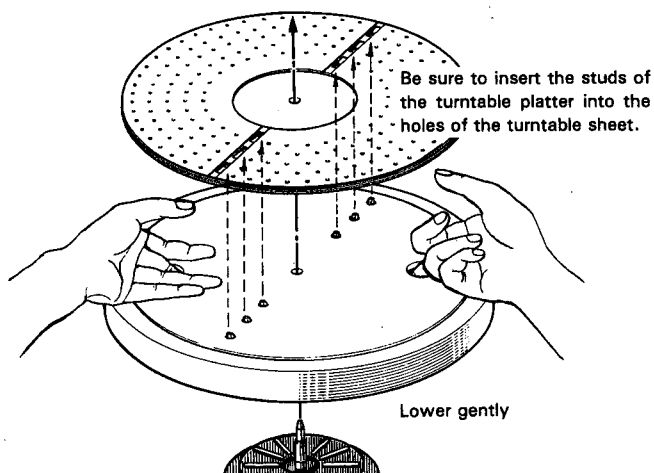
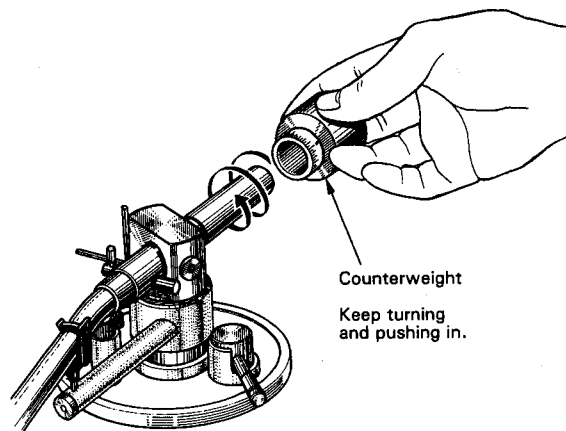


Fig. 4

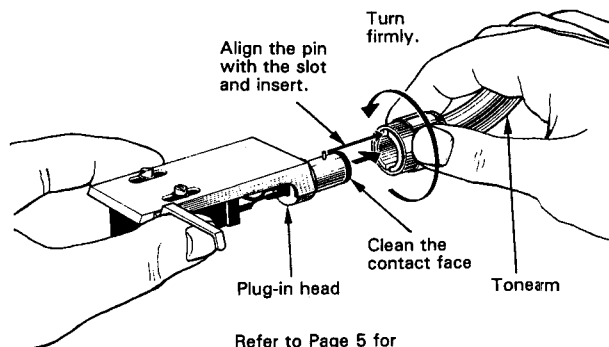
## ④ Counterweight Installation



After pushing the counterweight fully into place, turn it and confirm its freedom of movement.

Fig. 5

## ⑤ Head-Shell Installation



Refer to Page 5 for cartridge installation.

Fig. 6

## ⑥ Dust Cover Installation

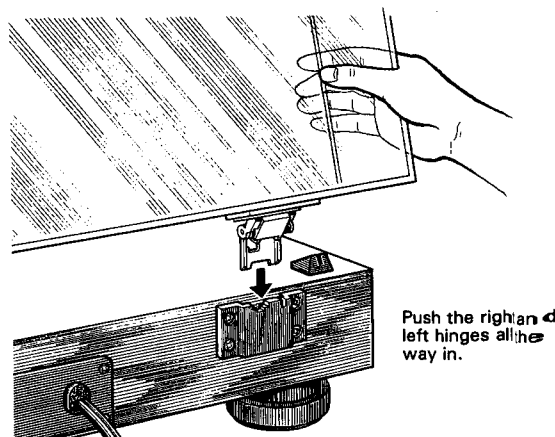


Fig. 7

## ⑦ Levelling the Assembly

Close the dust cover. Now check the turntable assembly to make sure that it is perfectly level. To raise any corner, turn the isolator at that corner counterclockwise. Turn isolator clockwise to lower that corner.

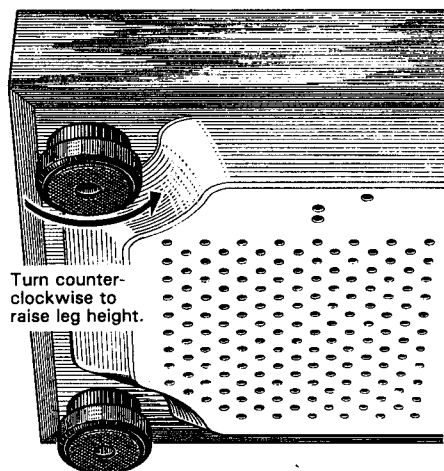


Fig. 8

- Remove the plastic protector before operating this turntable.

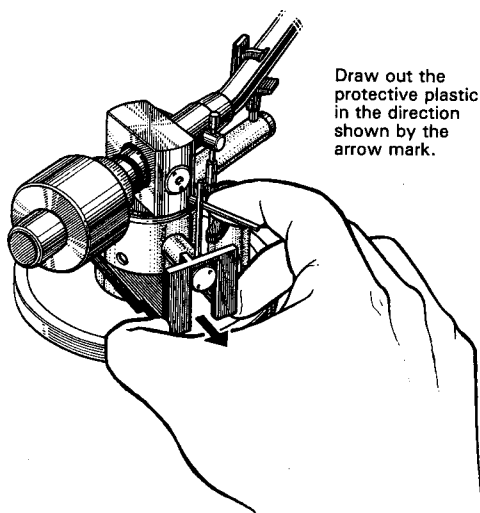


Fig. 9

## INSTALLING THE CARTRIDGE

- In most areas this unit is sold without a cartridge. The following shows how to install the cartridge of your choice. A DM-11 cartridge is supplied as standard equipment in some sales areas.
- All EIA standard type head-shells can be used with this turntable.
- Cartridges and head-shells are available in various weights. Their combined weight must be within 14 to 24 grams to fit this turntable. When the head-shell (12 g) supplied with this unit is used, a cartridge of from 2 to 12 g can be accommodated.

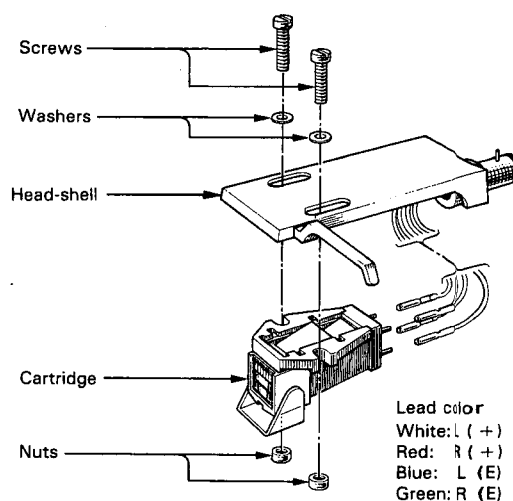


Fig. 10

- Use screws of proper length to fasten the cartridge.
- Fasten cartridge very lightly at first so that it can be moved and adjusted. Tighten the cartridge firmly in place parallel to the head-shell only after completing adjustments described on page 7, including the overhang adjustment.
- When special cartridges such as low-level MC cartridges are used, refer to the applicable operation manual for proper connections to the amplifier.

### Caution:

When mounting or dismounting a plug-in type head:

- First, securely clamp the tonearm in the arm rest.
- Then, either turn the volume control knob of the amplifier to 0, or turn off power.

# ADJUSTMENT OF TONEARM AND TRACKING FORCE ADJUSTMENT

## 1. TONEARM HEIGHT ADJUSTMENT

- ① Check that all power switches are in the OFF position. Then, place a record on the platter.
- ② Set the lock lever to the FREE position as shown in Fig. 11.
- ③ Place the stylus on the record.
- ④ Gently press down the arm rest support with your left hand until it stops. Then, gradually decrease the pressure, and the tonearm gradually rises because of force from the spring. Turn the lock lever to the LOCK position when the tonearm becomes parallel to the record surface. (Fig. 12)

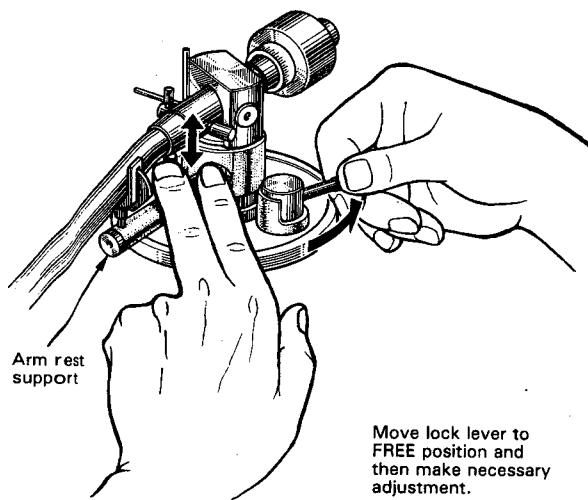


Fig. 11

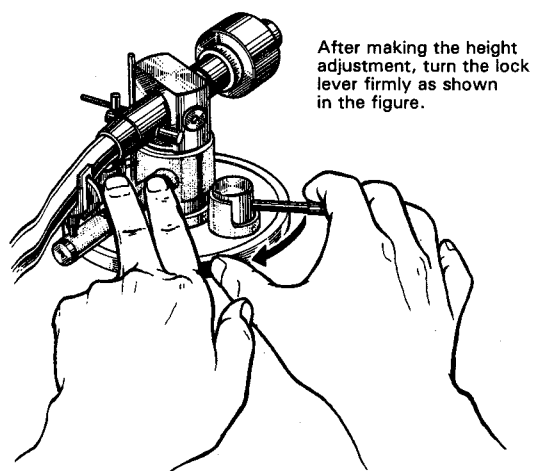
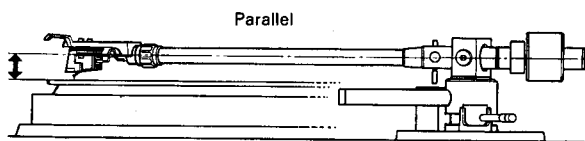


Fig. 12

## 2. STYLUS FORCE ADJUSTMENT

- ① Check that all the power switches are in the OFF position before adjusting the stylus force.
- ② Disengage the tonearm from the arm rest. Turn the counterweight until the tonearm balances horizontally.

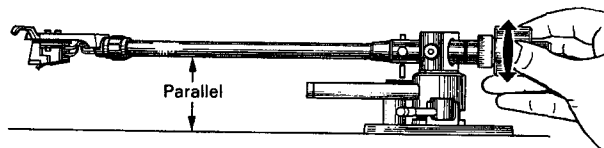


Fig. 13

- ③ Return tonearm to the arm rest. Now turn the counterweight dial only and set the 0 graduation to the reference line.

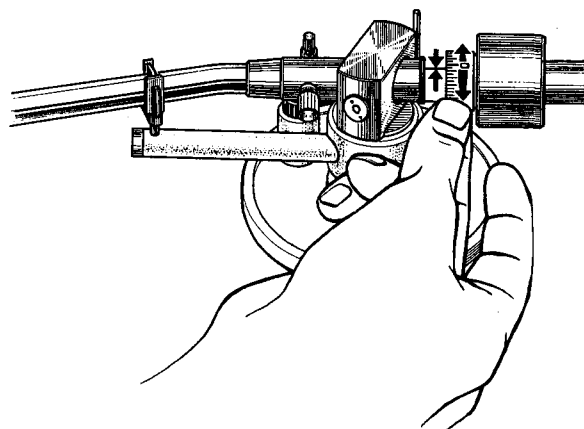
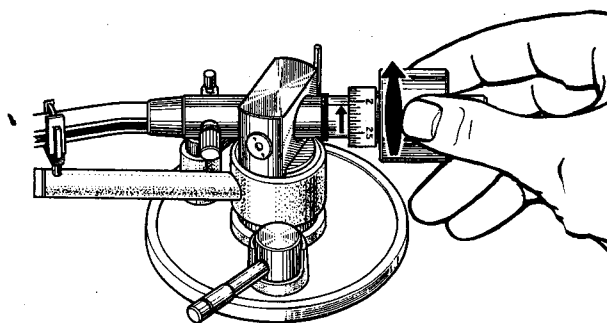


Fig. 14

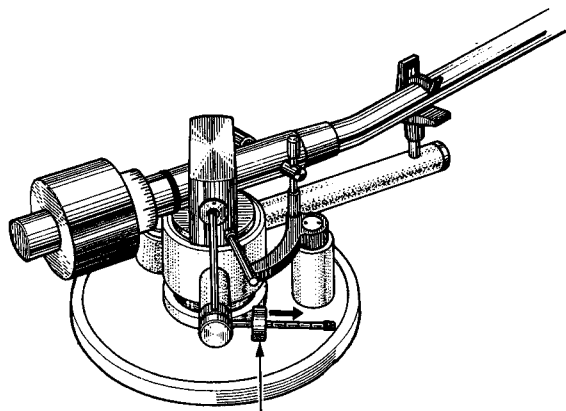
- ④ Turn the counterweight clockwise until the graduation corresponding to the recommended tracking force is aligned with the reference line.



For 2g tracking force

Fig. 15

- ⑤ Set the anti-skating device to the same tracking force value.



Slide the weight

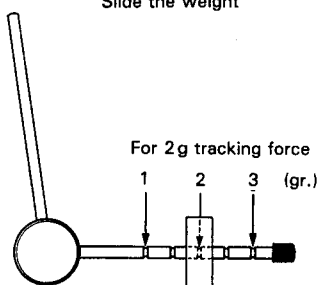


Fig. 16

### 3. STYLUS HEIGHT ADJUSTMENT

For good quality playback adjust height in the following manner.

- ① Adjust the tonearm height and tracking force.
- ② Place a record on the turntable and power switch ON.

Push the cueing switch to raise the tonearm. (The UP indicator lights to indicate that the tonearm is raised.)

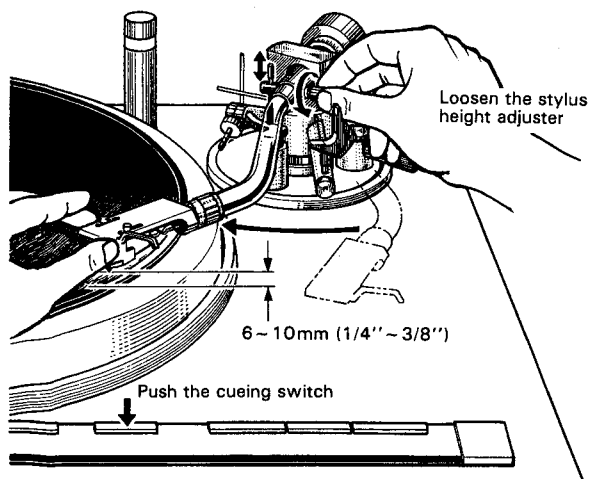


Fig. 17

- ③ Move the tonearm to a position above the record and support the head-shell with left hand. Loosen the stylus height adjuster with the right hand.
- ④ Tighten the stylus height adjuster when the stylus tip is 6 ~ 10 mm (1/4" ~ 3/8") from the record surface.
- ⑤ Push the cueing switch to lower the tonearm. (The UP indicator goes off when the tonearm is lowered.) The stylus tip must come into contact with the record surface. If this does not occur, readjust the tonearm height, tracking force and stylus height.

### 4. ADJUSTING OVERHANG

Adjust the overhang as shown in Figs. 18 and 19.

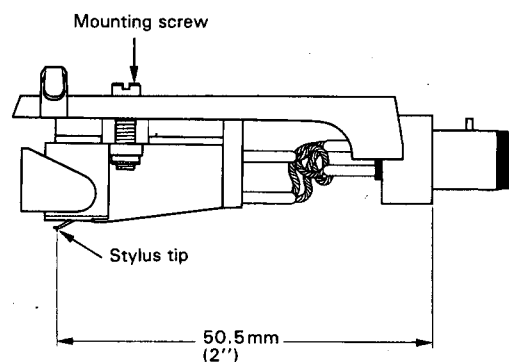


Fig. 18

When using an overhang gauge, align the stylus tip to the arrow on the gauge.

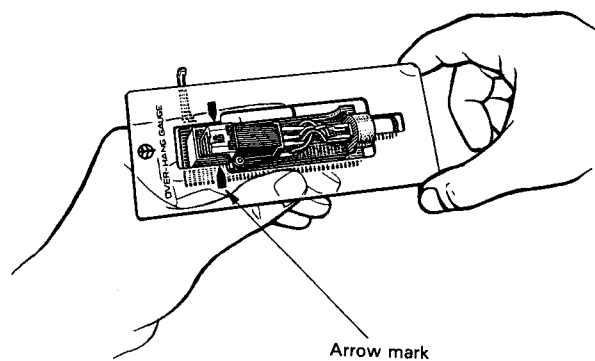


Fig. 19 Overhang Gauge

# OPERATING INSTRUCTIONS

## FOR AUTOMATIC OPERATION

1. Before operating the turntable, recheck the connections to the amplifier and amplifier control settings to see that they have been made correctly. Also check the tracking force adjustment (See page 6).
2. Push the power switch on. Research light and operation panel will light.
3. Place a record on the turntable platter. If a 45 rpm record is used, the adaptor that is supplied must first be placed onto the center shaft.
4. For 45 rpm records, push the speed selector switch once.  
Turntable speed is automatically set to 33-1/3 rpm when the power switch is turned on. Speed changes thereafter alternately to 45 rpm and 33-1/3 rpm each time that the speed selector switch is pushed in. The speed indicator always shows the selected speed.
5. Release the lock of the tonearm and press the PLAY switch. As the turntable platter starts rotating a prism detects the presence and the size of the record. The corresponding size indicator (33, 25 or 17) lights, and the tonearm shifts and lowers onto the lead-in groove, to start the playback.

### Note:

If there is no record on the turntable, the tonearm will move to the lead out position, and return to the arm rest.

6. At the end of play, the tonearm will automatically return to the arm rest. Simultaneously, the platter will stop turning.

### Note:

Operation can start only be initiated when the tonearm is on/above the arm rest.

## AUTO-CUT OPERATION

If you wish to stop reproduction part way through a record, push the CUT switch. The tonearm will return automatically to the arm rest, and the turntable platter will stop turning.

## AUTO-REPEAT OPERATION

First push the REPEAT switch, then the START switch for automatic replay. (The red LED of the REPEAT indicator lights to indicate that the turntable is in the repeat mode). The REPEAT switch can be operated during playback and the return mode. Push the REPEAT switch again for release from the repeat mode. The red LED goes OFF to indicate this. Pushing the CUT switch during repeat playing will cause the tonearm return to operate and release the repeat mode.

### Note:

When the tonearm is returning to the arm rest or is positioned above the lead-in groove (repeat mode can be set before this position is reached), depressing the repeat switch will cause the repeat indicator to light. In this position, the repeat mode cannot be set and the tonearm returns to the arm rest cancelling the repeat indicator.

## CUEING OPERATION

When it is desired to interrupt record play, push the CUEING switch. The red LED of the UP indicator lights, and the tonearm will rise, where it will remain in position as the record continues to turn.

When the CUEING switch push again, the red LED goes OFF, the stylus will descend and record play will resume at approximately the same point where it was cut off.

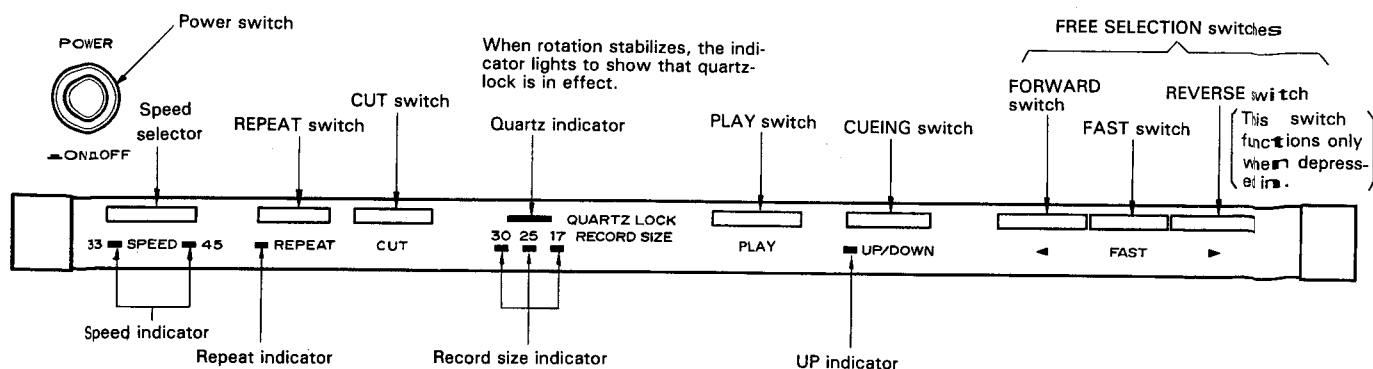


Fig. 20



## FOR FREE-SELECTION OPERATION

This mechanism can be used to start playback from arbitrary positions or for continuous replay.

When starting playback from an arbitrary position, carry out the following.

1. Perform items 1 through 4 of the "FOR AUTOMATIC OPERATION" described on page 8.
2. Release the arm rest lock and press the ◀(forward) switch. The tonearm is raised and the built-in red LED will light to indicate that the turntable is in the cueing mode. The tonearm slowly traverses and the turntable starts rotating. (Pressing the fast switch will increase the traversing speed 3.5 times.) When the tonearm reaches the desired position, release the ◀(forward) switch. If the tonearm overruns this position, depress the ▶(reverse) switch to return the tonearm. (High speed reversing using the fast switch is also possible.)
3. Depress the cueing lever. The built-in red LED goes off and the stylus tip is gently lowered to start playback.
4. Even in the free-selection operation mode, the tonearm will automatically return to the arm rest at the end of play, and the turntable platter will stop.

### Note:

Depressing the ◀(forward) switch while the tonearm is returning will stop it, however, the forward mode can not be used at this time.

During playback, the stylus can be positioned arbitrary by pressing the ▶(reverse) switch.

The tonearm lifts and built-in red LED lights to indicate a cueing mode. The tonearm slowly reverses out. (Fast speed travel is possible). When the desired position is reached, release the ▶(reverse) switch and depress the cueing switch.

The LED indicator goes off and the stylus tip is gently lowered onto the record surface, to start playback.

### Notes:

1. When the tonearm is raised after completion of free selection mode (except when the tonearm is on/above the arm rest), the PLAY switch will not function. When the cut switch is depressed, the tonearm returns to the arm rest, but does not lower. Depress the cueing switch will lower the tonearm onto the arm rest.
2. The repeat sequence can be set in the free selection mode. The starting position for this operation is the lead-in position of the record on the turntable.
3. When the tonearm is on the arm rest, depressing the ▶(reverse) switch, the ◀(forward) switch and the ▶(reverse) switch together, or combinations thereof including the fast switch, will result in lifting of the stylus only.

## FOR MANUAL OPERATION

For manual playback carry out the following.

1. Perform items 1 through to 4 of the "FOR AUTOMATIC OPERATION" described on page 8.
2. Confirm that the cueing switch is set at DOWN and manually disengage the tonearm from the arm rest. Shift the tonearm to the desired position and lower it gently onto the record surface. (Disengaging the tonearm from the arm rest will cause the platter to rotate automatically.)
3. In the manual mode, the tonearm will automatically return to the arm rest when the platter stops.

### Note:

When the tonearm is raised by the cueing switch, the tonearm will be slightly more heavy to move. When the desired position is reached, turn the cueing switch to lower the tonearm for playback.

## OPERATING NOTES

- As the control switches do not function for approximately a second after turning the power switch on, allow a second to elapse before operating.
- If the power switch is inadvertently turned off while functioning in auto-in, auto-return, auto-cut, or during a free selection operation, the tonearm enters the "DOWN" mode and may damage the stylus tip or a disc record. Care must be exercised against this possibility. (Similar comments apply to power failure, etc.)
- Where a disc record is transparent (such as with color discs colored red, blue, green, lilac, yellow, milky white, etc.), the automatic record size selector may malfunction. Manually operated record playing is recommended in such cases.
- Remarkably warped records may cause the automatic record size selector to operate erroneously.

# MAINTENANCE

## CLEANING THE CABINET AND DUST COVER

Clean the cabinet and dust cover gently with a dry cloth or silicone cloth. In case of stubborn soil, wipe with a cloth dampened in soap suds or mild detergent and well wrung out.

Never use thinner, alcohol, benzine or other volatile liquids.

## MOTOR LUBRICATION

The motor employs permanently-lubricated bearings. It will operate for more than 20,000 hours without attention to lubrication.

## PERIODIC CHECK-UP

Because a turntable is a mechanical device it is subject to the effects of wear and misadjustment that occurs due to normal handling. Even if your unit appears to function normally, a periodic check-up at intervals of two years or so is recommended to ensure a long service life and proper operation.

Check with your Kenwood dealer or authorized Kenwood service representative.

## STYLUS LIFE

The stylus point is very delicately made and it should be handled with great care. Dust accumulating at the tip should be removed with a soft brush by

brushing off lightly. A stylus is good for playing a 30 cm (12 inch) LP record about 500 times, but this varies greatly depending on how it is used.

A worn stylus will cause treble tones to increase in harshness. The stylus should be replaced as soon as this becomes noticeable. This will prevent record wear.

## STYLUS REPLACEMENT

N-11 is the designation of the replacement stylus for that used in the DM-11 cartridge.

Replacement stylus may be obtained from the dealer from whom you purchased this turntable.

You can replace the stylus easily as shown below.

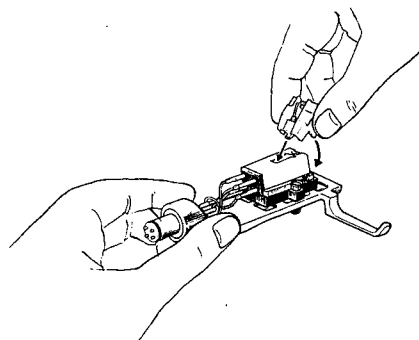


Fig. 21

# IN CASE OF DIFFICULTY

If difficulty is experienced after making the initial set up, the table below might help to eliminate the problem. If the trouble cannot be corrected, check with your Kenwood dealer.

Symptom	Cause	Correction
Pick-up does not start when the PLAY switch is depressed.	1. Tonearm is clamped with the arm rest. 2. Tonearm is disengaged from the arm rest.	1. Release the tonearm from the arm rest lock. 2. Return the tonearm to the arm rest.
The tonearm moves to the desired position, but cannot be lowered.	The cueing switch is set to UP.	Set the cueing switch to DOWN.
No sound from both left and right channels or one channel.	1. Turntable output cable or cables disconnected. 2. Poor connection of head shell connector. 3. The function switch of the amplifier is not set to PHONO or PHONO MC.	1. Check connections to amplifier. 2. Install the head shell in the tonearm correctly. 3. Set the function switch to PHONO or PHONO MC.
The bottom of the cartridge comes into contact with the record surface.	The tracking force is too large. The tonearm height is incorrectly adjusted.	Readjust the tracking force. Readjust the height of the tonearm.
Loud hum, no music.	1. Poor connection of turntable output cables. 2. Poor plug-in Head connection.	1. Make solid connections to amplifier. 2. Make solid connections.
Loud hum with music.	1. Turntable output cable picking up hum from AC cord. 2. The ground wire of the turntable is not connected to GND terminal of the amplifier.	1. Separate output cables from AC cord or Reverse AC cord plug. 2. Connect the ground wire to the GND terminal of the amplifier. (With some cartridges, this is not necessary.)
Buzzing noise with music.	Turntable output cable picking up TV signal.	Relocate output cord for minimum pickup.
Howling drowns out music when volume is increased.	Speaker vibration is picked up by turntable.	Separate turntable from speakers.
Turntable platter does not turn.	Poor AC plug contact.	Check connection. Make sure AC outlet is active.
Poor tracking.	1. Excessive dust on record or stylus. 2. Worn stylus. 3. Tracking force is too light or heavy.	1. Remove dust from stylus or record. 2. Change stylus. 3. Adjust the tracking force to the specified value.

# SPECIFICATIONS

## MOTOR & TURNTABLE

Drive System .....	Quartz PLL direct drive system
Motor .....	20 pole, 30 slot brushless DC servo motor (Starting torque 1.5 kg•cm)
Turntable Platter .....	33cm (13inch) diameter, aluminum alloy die-cast Weight: 2.6 kg (5.7 lbs.) Moment of inertia: 550 kg•cm <sup>2</sup>
Speeds .....	2 speeds, 33-1/3 and 45rpm.
Wow & Flutter .....	Less than 0.022% (WRMS) Less than ±0.030% (DIN)
Signal to Noise Ratio .....	More than 62 dB
Rumble .....	DIN weighted better than -83 dB DIN unweighted better than -55 dB
Load Fluctuation .....	0% (within 120g of tracking force)
Transient Load Fluctuation ..	Less than 0.0003% (at 33-1/3 rpm., 400Hz, 20g•cm load) Less than 0.00015% (at 33-1/3 rpm., 1,000Hz, 20g•cm load)
Starting Time .....	Within 1.8 sec.
Platter Speed Deviation .....	Less than 0.002%
Time Drift .....	Less than 0.0002%/h
Temperature Drift .....	Less than 0.00002%/c

## TONEARM

Type .....	Static-balanced type, S-shaped pipe arm, EIA plug in connector
Effective Tonearm Length ..	245mm (9-5/8inch)
Overhang .....	15mm (9/16inch)
Tracking Error .....	+1.8 to -1.0 degree
Stylus Pressure Variable Range	0 to 3grams (0.1g step)
Usable Cartridge Weight ....	2.0 to 12.0grams
Adjustable height Range ....	Within ±3mm (±1/8inch)
Arm Base .....	Wedge-shaped chuck type

## CARTRIDGE

(Only military's model is equipped with the DM-11 cartridge.)	
Furnished Cartridge .....	DM-11 (VM type)
Stylus .....	N-11 with 0.5 mil diamond
Frequency Response .....	20Hz to 20,000Hz
Output Voltage .....	3.5mV (1,000Hz, 5cm/sec.)
Optimum Tracking Force ....	2.0 ±0.3grams
load Impedance .....	50 kohms
Channel Separation .....	Better than 27dB (1,000Hz)
Replacement Stylus .....	N-11

## ADDITIONAL FEATURES:

Full electronic controlled fully-automatic tonearm system (Automatic lead-in/return/cut/repeat)  
Automatic disc size selector  
Free-selection tonearm operation system (Forward/reverse)  
Oil damped cueing device  
Illuminated quartz-look indicator  
LED speed indicators  
Electronic-controlled brake  
Stylus height adjuster  
Wedge-shaped chuck type arm base  
Anti-skating device  
Low capacitance phono cables  
Stylus pressure direct readout counter  
Adjustable height insulators  
Acrylic dust cover (weight: 1.2 kg)  
Head-shell stand

## MISCELLANEOUS

Power Requirement .....	AC 120V, 60Hz: U.S.A. and Canada models AC 240V, 50Hz: U.K. model AC 120V/220V (switchable), 50Hz/60Hz: European and Military models. AC 120V/240V (switchable), 50Hz/60Hz: Other countries.
Power Consumption .....	35.0 watts
Dimensions .....	W 491mm (19-5/16") H 176mm (6-15/16") D 404mm (15-7/8")
Weight .....	14.5kg (32.0lbs.)

## SUPPLIED ACCESSORIES:

45rpm. adaptor  
Overhang gauge  
Screw driver  
Ground wire

## CABINET

Material .....	Particle board laminated with simulated wood grain veneer and an Anti-Resonance Compression Base (ARCB) are combined in the construction of the Cabinet.
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**Note:** KENWOOD follows a policy of continuous advancement in development. For this reason specifications may be changed without notice.

# FEATURES

## 1. Quartz PLL Direct Drive System

The direct drive system uses a 20 pole, 30 slot brushless DC servo motor, a high inertia turntable platter and a quartz lock control system to provide precise and smooth rotation under ambient conditions. The motor speed does not vary even if a random transient load is applied by the cartridge stylus.

## 2. Electronic Control Full Automatic System

Kenwood's most current technology is shown in this fully automatic electronic control system.

Only feather-touch press operated switches are used in the full automatic functions (automatic disk size detector, auto-lead-in and auto-return), auto-cut, auto-repeat, cuing and free selection operation.

## 3. Automatic Detection of Record Size

An exclusive optical system gauges the size of the record on the platter to establish automatic location of the lead grooves.

## 4. Non-resonating, Highly Sensitive S-shaped Tonearm

The static-balanced type, S-shaped tonearm has an effective length of 245 mm (9-5/8"). The height of the tonearm can be easily and ac-

curately adjusted by means of the spring-lift system. Further, the height of the arm lifter can be easily adjusted at the side of the tonearm to allow any type of cartridge to be used in automatic operation.

## 5. Anti-resonance Cabinet

Particle board laminated with simulated wood grain veneer and an Anti-Resonance Compression Base (ARCB) are combined in the construction of the Cabinet. The cabinet has a sufficient mass to prevent externally applied vibration and energy of reaction from platter rotation from influencing the tonearm operation.

## 6. Monobloc aluminum die cast head-shell

The connector section and head-shell are monobloc casted to improve strength. New polyurethane coated, silk-wound pure copper litz wires are used inside the tonearm.

## 7. Static Type Anti-skating Mechanism

## 8. Vertical suspension Insulator

## 9. Non-resonating Acrylic Dust Cover

## TRANSPORT NOTES

When the unit must be moved to another place because of a change of residence, etc., it should be correctly packed in the packing materials furnished at the time of purchase. Even if these packing materials have been discarded, the unit must be disassembled into the turntable, the counterweight, and the plug-in head (shell + cartridge). These components should be packed separately for transport.

Since the motor is DC type, it is not influenced by the source frequency. The unit will operate normally in both 50 and 60 Hz zones.

## INSTALLATION

- Install the unit on a flat, vibration-free table or stand.
- Do not place the unit near a heat producing equipment such as a radiator. Avoid direct sunlight.
- The unit may not function properly if used at extremely low, or freezing temperatures. The ideal ambient temperature is above +5°C (41°F).
- Do not store or use the unit in a dusty location or in a moist atmosphere. Select a location where air is well ventilated.
- Keep the unit away from a source of magnetic fields such as TV sets, speaker systems, radios or magnetized objects.
- Operate the unit on rated power supply voltage ( $\pm 5\%$ ). Irregular power voltage will result in incorrect operation.

